

SEQUENCE LISTING

<110> Malaysian Palm Oil Board

<120> A molecular marker

<130> 2487340/EJH

<150> AU PR2213

<151> 2000-12-20

<160> 9

<170> PatentIn version 3.0

<210> 1

<211> 573

<212> DNA

<213> oil palm

<220>

<221> CDS

<222> (1)..(573)

<400> 1

atg ccg ggg cta acg atc ggc gac acg atc ccg aac ctg gag gtg gag 48
Met Pro Gly Leu Thr Ile Gly Asp Thr Ile Pro Asn Leu Glu Val Glu
1 5 10 15

acc acg cac ggg aag atc cgg atc cac gac tac gtc ggc gat ggt tgg 96
Thr Thr His Gly Lys Ile Arg Ile His Asp Tyr Val Gly Asp Gly Trp
20 25 30

gcc atc atc ttc tcc cat ccc gcg gat ttc aca ccc gtg tgc acg acg 144
Ala Ile Ile Phe Ser His Pro Ala Asp Phe Thr Pro Val Cys Thr Thr
35 40 45

gag ctg ggg aag atg gcg gcg tac gcg gag gag ttc gag aaa aga ggg 192

Glu Leu Gly Lys Met Ala Ala Tyr Ala Glu Glu Phe Glu Lys Arg Gly
50 55 60

gtg aag ctg cta ggc atc tcc tgc gac gat gtc aag tgc cac atg gaa 240
Val Lys Leu Leu Gly Ile Ser Cys Asp Asp Val Lys Cys His Met Glu
65 70 75 80

tgg atc aaa gac gtc gag gcc tac acg ccc gga tgt cgc gta aca tat 288
Trp Ile Lys Asp Val Glu Ala Tyr Thr Pro Gly Cys Arg Val Thr Tyr
85 90 95

cca att gta gcc gac ccc aag agg gag gtg atc aaa ctg ctg aac atg 336
Pro Ile Val Ala Asp Pro Lys Arg Glu Val Ile Lys Leu Leu Asn Met
100 105 110

gta gac cct gag gag aag gac tca aat ggg aac cag ctc ccg tca cgg 384
Val Asp Pro Glu Glu Lys Asp Ser Asn Gly Asn Gln Leu Pro Ser Arg
115 120 125

gcc ctt cat ata gtg ggc cct gat aag aag gtt aag ctg agc ttt ctg 432
Ala Leu His Ile Val Gly Pro Asp Lys Lys Val Lys Leu Ser Phe Leu
130 135 140

tac ccg gcg tcg acg ggg cgg aac atg gag gag gtg gtc agg gtg ttg 480
Tyr Pro Ala Ser Thr Gly Arg Asn Met Glu Glu Val Val Arg Val Leu
145 150 155 160

gag tcg ctt cag aag acg atc aag tat aag gtg gcg acc cca gcg aac 528
Glu Ser Leu Gln Lys Thr Ile Lys Tyr Lys Val Ala Thr Pro Ala Asn
165 170 175

tgg aaa ccg ggg gag ccc gtg gtg atc tcg ccc gag cgt gtc caa 573
Trp Lys Pro Gly Glu Pro Val Val Ile Ser Pro Glu Arg Val Gln
180 185 190

<210> 2
<211> 191
<212> PRT

<213> oil palm

<400> 2

Met Pro Gly Leu Thr Ile Gly Asp Thr Ile Pro Asn Leu Glu Val Glu
1 5 10 15

Thr Thr His Gly Lys Ile Arg Ile His Asp Tyr Val Gly Asp Gly Trp
20 25 30

Ala Ile Ile Phe Ser His Pro Ala Asp Phe Thr Pro Val Cys Thr Thr
35 40 45

Glu Leu Gly Lys Met Ala Ala Tyr Ala Glu Glu Phe Glu Lys Arg Gly
50 55 60

Val Lys Leu Leu Gly Ile Ser Cys Asp Asp Val Lys Cys His Met Glu
65 70 75 80

Trp Ile Lys Asp Val Glu Ala Tyr Thr Pro Gly Cys Arg Val Thr Tyr
85 90 95

Pro Ile Val Ala Asp Pro Lys Arg Glu Val Ile Lys Leu Leu Asn Met
100 105 110

Val Asp Pro Glu Glu Lys Asp Ser Asn Gly Asn Gln Leu Pro Ser Arg
115 120 125

Ala Leu His Ile Val Gly Pro Asp Lys Lys Val Lys Leu Ser Phe Leu
130 135 140

Tyr Pro Ala Ser Thr Gly Arg Asn Met Glu Glu Val Val Arg Val Leu
145 150 155 160

Glu Ser Leu Gln Lys Thr Ile Lys Tyr Lys Val Ala Thr Pro Ala Asn
165 170 175

Trp Lys Pro Gly Glu Pro Val Val Ile Ser Pro Glu Arg Val Gln
180 185 190

<210> 3
<211> 873
<212> DNA
<213> oil palm

<220>
<221> CDS
<222> (28)...(600)

<400> 3

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Met Pro Gly Leu Thr Ile Gly Asp Thr
1 5

atc ccg aac ctg gag gtg gag acc acg cac ggg aag atc cgg atc cac 102
Ile Pro Asn Leu Glu Val Glu Thr Thr His Gly Lys Ile Arg Ile His
10 15 20 25

gac tac gtc ggc gat ggt tgg gcc atc atc ttc tcc cat ccc gcg gat 150
Asp Tyr Val Gly Asp Gly Trp Ala Ile Ile Phe Ser His Pro Ala Asp
30 35 40

ttc aca ccc gtg tgc acg acg gag ctg ggg aag atg gcg gcg tac gcg 198
Phe Thr Pro Val Cys Thr Thr Glu Leu Gly Lys Met Ala Ala Tyr Ala
45 50 55

gag gag ttc gag aaa aga ggg gtg aag ctg cta ggc atc tcc tgc gac 246
Glu Glu Phe Glu Lys Arg Gly Val Lys Leu Leu Gly Ile Ser Cys Asp
60 65 70

gat gtc aag tgc cac atg gaa tgg atc aaa gac gtc gag gcc tac acg 294
Asp Val Lys Cys His Met Glu Trp Ile Lys Asp Val Glu Ala Tyr Thr
75 80 85

ccc gga tgt cgc gta aca tat cca att gta gcc gac ccc aag agg gag 342
Pro Gly Cys Arg Val Thr Tyr Pro Ile Val Ala Asp Pro Lys Arg Glu
90 95 100 105

gtg atc aaa ctg ctg aac atg gta gac cct gag gag aag gac tca aat		390
Val Ile Lys Leu Leu Asn Met Val Asp Pro Glu Glu Lys Asp Ser Asn		
110	115	120
ggg aac cag ctc ccg tca cgg gcc ctt cat ata gtg ggc cct gat aag		438
Gly Asn Gln Leu Pro Ser Arg Ala Leu His Ile Val Gly Pro Asp Lys		
125	130	135
aag gtt aag ctg agc ttt ctg tac ccg gcg tcg acg ggg cgg aac atg		486
Lys Val Lys Leu Ser Phe Leu Tyr Pro Ala Ser Thr Gly Arg Asn Met		
140	145	150
gag gag gtg gtc agg gtg ttg gag tcg ctt cag aag acg atc aag tat		534
Glu Glu Val Val Arg Val Leu Glu Ser Leu Gln Lys Thr Ile Lys Tyr		
155	160	165
aag gtg gcg acc cca gcg aac tgg aaa ccg ggg gag ccg gtg gtg atc		582
Lys Val Ala Thr Pro Ala Asn Trp Lys Pro Gly Glu Pro Val Val Ile		
170	175	180
		185
tcc ccc gag cgt gtc caa tgaggaggcc aagcagatgt tccccgcaggg		630
Ser Pro Glu Arg Val Gln		
190		
agttgagaat gtgaatctcc catcgaagaa ggattacctc cgcttcacaa aagtctaattg		690
tttgttggcc gtccgtgata tgttcataag tggtttctgg ggcccgactg tatactgtgt		750
tgcgtgttta tatgtttgtg ttggtatcat gtagttgtg ccttagggga gtttggatat		810
taatttgttag ttatgttaa ttattaaagt tttaccatg agattaaaaaa aaaaaaaaaa		870
aaa		873
<210> 4		
<211> 191		
<212> PRT		

<213> oil palm

<400> 4

Met Pro Gly Leu Thr Ile Gly Asp Thr Ile Pro Asn Leu Glu Val Glu
1 5 10 15

Thr Thr His Gly Lys Ile Arg Ile His Asp Tyr Val Gly Asp Gly Trp
20 25 30

Ala Ile Ile Phe Ser His Pro Ala Asp Phe Thr Pro Val Cys Thr Thr
35 40 45

Glu Leu Gly Lys Met Ala Ala Tyr Ala Glu Glu Phe Glu Lys Arg Gly
50 55 60

Val Lys Leu Leu Gly Ile Ser Cys Asp Asp Val Lys Cys His Met Glu
65 70 75 80

Trp Ile Lys Asp Val Glu Ala Tyr Thr Pro Gly Cys Arg Val Thr Tyr
85 90 95

Pro Ile Val Ala Asp Pro Lys Arg Glu Val Ile Lys Leu Leu Asn Met
100 105 110

Val Asp Pro Glu Glu Lys Asp Ser Asn Gly Asn Gln Leu Pro Ser Arg
115 120 125

Ala Leu His Ile Val Gly Pro Asp Lys Lys Val Lys Leu Ser Phe Leu
130 135 140

Tyr Pro Ala Ser Thr Gly Arg Asn Met Glu Glu Val Val Arg Val Leu
145 150 155 160

Glu Ser Leu Gln Lys Thr Ile Lys Tyr Lys Val Ala Thr Pro Ala Asn
165 170 175

Trp Lys Pro Gly Glu Pro Val Val Ile Ser Pro Glu Arg Val Gln
180 185 190

<210> 5
<211> 17
<212> DNA
<213> oil palm

<400> 5
aggaggattg tgcagag

17

<210> 6
<211> 18
<212> DNA
<213> oil palm

<400> 6
caaactctca gctaggca

18

<210> 7
<211> 218
<212> PRT
<213> Hordeum vulgare

<400> 7
Met Pro Gly Leu Thr Ile Gly Asp Thr Val Pro Asn Leu Glu Leu Asp
1 5 10 15

Ser Thr His Gly Lys Ile Arg Ile His Asp Tyr Val Gly Asn Gly Tyr
20 25 30

Val Ile Leu Phe Ser His Pro Gly Asp Phe Thr Pro Val Cys Thr Thr
35 40 45

Glu Leu Ala Ala Met Ala Asn Tyr Ala Lys Glu Phe Glu Lys Arg Gly
50 55 60

Val Lys Leu Leu Gly Ile Ser Cys Asp Asp Val Gln Ser His Lys Glu
65 70 75 80

Trp Thr Lys Asp Ile Glu Ala Tyr Lys Pro Gly Ser Lys Val Thr Tyr
85 90 95

Pro Ile Met Ala Asp Pro Asp Arg Ser Ala Ile Lys Gln Leu Asn Met
100 105 110

Val Asp Pro Asp Glu Lys Asp Ala Gln Gly Gln Leu Pro Ser Arg Thr
115 120 125

Leu His Ile Val Gly Pro Asp Lys Val Val Lys Leu Ser Phe Leu Tyr
130 135 140

Pro Ser Cys Thr Gly Arg Asn Met Asp Glu Val Val Arg Ala Val Asp
145 150 155 160

Ser Leu Leu Thr Ala Ala Lys His Lys Val Ala Thr Pro Ala Asn Trp
165 170 175

Lys Pro Gly Glu Cys Val Val Ile Ala Pro Gly Val Ser Asp Glu Glu
180 185 190

Ala Lys Lys Met Phe Pro Gln Gly Phe Glu Thr Ala Asp Leu Pro Ser
195 200 205

Lys Lys Gly Tyr Leu Arg Phe Thr Lys Val
210 215

<210> 8
<211> 216
<212> PRT
<213> Arabidopsis thaliana

<400> 8

Met Pro Gly Ile Thr Leu Gly Asp Thr Val Pro Asn Leu Glu Val Glu
1 5 10 15

Thr Thr His Asp Lys Phe Lys Leu His Asp Tyr Phe Ala Asn Ser Trp
20 25 30

Thr Val Leu Phe Ser His Pro Gly Asp Phe Thr Pro Val Cys Thr Thr
35 40 45

Glu Leu Gly Ala Met Ala Lys Tyr Ala His Glu Phe Asp Lys Arg Gly
50 55 60

Val Lys Leu Leu Gly Leu Ser Cys Asp Asp Val Gln Ser His Lys Asp
65 70 75 80

Trp Ile Lys Asp Ile Glu Ala Phe Asn His Gly Ser Lys Val Asn Tyr
85 90 95

Pro Ile Ile Ala Asp Pro Asn Lys Glu Ile Ile Pro Gln Leu Asn Met
100 105 110

Ile Asp Pro Ile Glu Asn Gly Pro Ser Arg Ala Leu His Ile Val Gly
115 120 125

Pro Asp Ser Lys Ile Lys Leu Ser Phe Leu Tyr Pro Ser Thr Thr Gly
130 135 140

Arg Asn Met Asp Glu Val Leu Arg Ala Leu Asp Ser Leu Leu Met Ala
145 150 155 160

Ser Lys His Asn Asn Lys Ile Ala Thr Pro Val Asn Trp Lys Pro Asp
165 170 175

Gln Pro Val Val Ile Ser Pro Ala Val Ser Asp Glu Glu Ala Lys Lys
180 185 190

Met Phe Pro Gln Gly Phe Lys Thr Ala Asp Leu Pro Ser Lys Lys Gly
195 200 205

Tyr Leu Arg His Thr Glu Val Ser
210 215

<211> 272

<212> PRT

<213> Brassica campestris

<400> 9

Met Ala Ser Val Ala Ser Ser Thr Thr Leu Ile Ser Ser Ser Ala Ser
1 5 10 15

Val Leu Pro Ala Thr Lys Ser Ser Leu Leu Pro Ser Pro Ser Leu Ser
20 25 30

Phe Leu Pro Thr Leu Ser Ser Pro Ser Pro Ser Ala Ser Leu Arg Ser
35 40 45

Leu Val Pro Leu Pro Ser Pro Gln Ser Ala Ser Ser Ser Arg Arg Ser
50 55 60

Phe Ala Val Lys Gly Gln Thr Asp Asp Leu Pro Leu Val Gly Asn Lys
65 70 75 80

Ala Pro Asp Phe Glu Ala Glu Gly Val Phe Asp Gln Glu Phe Ile Lys
85 90 95

Phe Ile Lys Val Lys Leu Ser Asp Tyr Ile Gly Lys Lys Tyr Val Ile
100 105 110

Leu Phe Phe Leu Pro Leu Asp Phe Thr Phe Val Cys Pro Thr Glu Ile
115 120 125

Thr Ala Phe Ser Asp Arg Tyr Ala Glu Phe Glu Lys Leu Asn Thr Glu
130 135 140

Val Leu Gly Val Ser Val Asp Ser Val Ser Val Phe Ser His Leu Ala
145 150 155 160

Gly Val Gln Thr Asp Arg Lys Phe Gly Gly Leu Gly Asp Leu Asn Tyr
165 170 175

Pro Leu Ile Ser Asp Val Thr Lys Ser Ile Ser Lys Ser Phe Gly Val
180 185 190

Leu Ile His Asp Gln Gly Ile Ala Leu Arg Gly Leu Phe Ile Ile Asp
195 200 205

Lys Glu Gly Val Ile Gln His Ser Thr Ile Asn Leu Gly Ile Gly Arg
210 215 220

Ser Val Asp Glu Thr Met Arg Thr Leu Gln Ala Leu Gln Tyr Ile Gln
225 230 235 240

Glu Gly Pro Gly Glu Val Cys Pro Ala Gly Trp Lys Pro Gly Glu Lys
245 250 255

Ser Met Lys Pro Asp Pro Lys Leu Ser Lys Glu Leu Phe Ser Ala Ile
260 265 270